

CLAIMS

What is claimed is:

1. A method for screening a candidate compound for effectiveness in modifying the binding properties of a p38 protein comprising the steps of:
 - a) exposing a sample comprising said p38 protein to said candidate compound; and
 - b) measuring a binding property of said p38 protein.
2. The method of Claim 1 wherein said sample further comprises a parkin.
3. The method of Claim 2 wherein said measuring step (b) comprises measuring the interaction between said p38 protein and said parkin.
4. The method of Claim 1 wherein said sample further comprises an enzyme substrate.
5. The method of Claim 1, wherein said method is performed in vitro.
6. The method of Claim 1, wherein said method is performed in vivo.
7. The method of Claim 6, wherein said p38 protein is expressed in yeast.
8. The method of Claim 1, wherein said p38 protein is selected from the group consisting of:
 - a) a polypeptide encoded by the polynucleotide of SEQ ID NO:1,
 - b) a polypeptide encoded by the polynucleotide of SEQ ID NO:2,
 - c) a polypeptide encoded by the polynucleotide of SEQ ID NO:3,
 - d) a polypeptide encoded by the polynucleotide of SEQ ID NO:4,
 - e) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:1,
 - f) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:2,

- g) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:3, and
- h) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:4.

5

9. The method of Claim 2, wherein said parkin is selected from the group consisting of:

- a) a polypeptide encoded by the polynucleotide of SEQ ID NO:5,
- b) a polypeptide encoded by the polynucleotide of SEQ ID NO:6,
- c) a polypeptide encoded by the polynucleotide of SEQ ID NO:7,
- 10 d) a polypeptide encoded by the polynucleotide of SEQ ID NO:8,
- e) a polypeptide encoded by the polynucleotide of SEQ ID NO:9,
- f) a polypeptide encoded by the polynucleotide of SEQ ID NO:10,
- g) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:5,
- 15 h) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:6,
- i) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:7,
- j) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:8,
- 20 k) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:9, and
- l) a polypeptide having at least 65% identity to a polypeptide encoded by the polynucleotide of SEQ ID NO:10.

25

10. A compound identified accord to the method of Claim 1.

11. The compound of Claim 10, wherein said compound is selected from the group consisting of: a polypeptide, a polynucleotide, a lipid, a saccharide, and an antibody.

30

12. A pharmaceutical composition comprising an effective amount of the compound of Claim 10 and a pharmaceutically acceptable excipient.

13. A method of treating a neurodegenerative disease comprising the step of administering the pharmaceutical compound of Claim 12.
14. The method of Claim 13, wherein said neurodegenerative disease is Parkinson's disease.
15. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:
 - a) a polypeptide comprising an amino acid sequence of SEQ ID NO:2,
 - b) a polypeptide comprising an amino acid sequence comprising at least 5 consecutive amino acid residues of SEQ ID NO:2,
 - c) a polypeptide comprising an amino acid sequence comprising at least 9 consecutive amino acid residues of SEQ ID NO:2,
 - d) a polypeptide comprising an amino acid sequence comprising at least 15 consecutive amino acid residues of SEQ ID NO:2,
 - e) a polypeptide comprising an amino acid sequence that is a derivative of SEQ ID NO:2, and
 - f) a polypeptide comprising an amino acid sequence that is a fragment of SEQ ID NO:2.
16. An isolated polynucleotide encoding a polypeptide of Claim 15.
17. The isolated polynucleotide of Claim 16 comprising the sequence of SEQ ID NO:1.
18. A vector comprising the isolated polynucleotide of Claim 16.
19. The vector of Claim 18, wherein said vector is a defective recombinant virus.
20. An isolated antibody which specifically binds to a polypeptide of claim 15.
21. The antibody of claim 20, wherein the antibody is selected from the group consisting of: a chimeric antibody, a single chain antibody, a Fab fragment, a F(ab').sub.2 fragment, and a humanized antibody.

22. A method for producing a polypeptide of claim 15, the method comprising:
- 5 a) culturing a cell under conditions suitable for expression of the polypeptide, wherein said cell is transformed with a recombinant polynucleotide, and said recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide encoding the polypeptide of claim 15, and
- b) recovering the polypeptide so expressed.
23. A cell transformed with a recombinant polynucleotide of Claim 16.